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Guntermann & Drunck GmbH

DVI KVM Matrixswitches 6.9

2011-03

DVI KVM Matrixswitches
Matrixswitches for the operation and administration of multiple computers with digital video via distributed consoles

Intelligent solutions

Guntermann & Drunck GmbH has been established in 1985 and is named after its founders. Over 25 years have since past, and we are now a leading manufacturer of digital and analog KVM switching systems.
As an owner-managed company we work with a broad range in both digital and analog KVM closely with the marketplace and make our decisions with and in the interests of our customers. It is our philosophy to meet our customers while making decisions, to accompany them in the process and ensure that they achieve their goals.

We can do this because as a medium sized company we have short communication paths and all core competencies are in house – from development through to production. This way we can even make the impossible possible at times. If it is thanks to the modularity of the products or by implementing a customised solution. We orient ourselves towards the needs of the customer – and not the other way round.

Organisations, service providers and companies of all sizes managing numerous computers, servers and other network devices trust the comprehensive advice and service provided by Guntermann & Drunck GmbH.

Thanks to these different fields of specialisation, the demands placed on the products are many and are manifold. Our products have to provide a long-life service, be secure, uncomplicated, user-friendly, understandable and adaptable.

The DVI KVM Matrixswitch system, DVICenter DP32, provides the following signals for several simultaneous consoles:

- ► DVI single-link video
- ► keyboard/mouse
- ► audio bidirectional.

The system consists of three main components: a central module, computer modules (computer connection) and user modules. The modules are interconnected via CAT-x cables.

The system facilitates the provision of multiple computers at multiple user modules. The number of computer ports as well as the number of user ports can be assigned in any order within a total of 32 ports (DP32 = Dynamic Port Technology for 32 ports).

A functional system contains a minimum of one DVICenter DP32, one DVI-CPU, one DVI-CON and the necessary connection cables.

Highlights

- ***resolutions up to 1920 x 1200 @ 60 Hz or 1280 x 1024 @ 85 Hz***
- ***24 bit colour depth***
- ***central module requires1 HU***
- ***HDIP (High Dynamic Image Processing) for best image quality even for moving images***
- ***redundant (internal) power supply***
- ***configurable number of computer and user ports***
- ***supports external authentication at directory services (LDAP, Active Directory, TACACS+, Radius)***
- ***output of SNMP traps and Syslog messages on different facility levels***
- ***switching of audio signals***
- ***up to 140 metres distance between computer module and central module as well as between central module and user module; cascaded up to 560 m in total***
- ***optional power switchover integration (switch on/off computer via OSD)***
- ***emergency operation: direct failover connection of user and computer module possible***
- ***detection and display of the DVICenter DP32-system architecture***

In Preparation

To make the DVICenter even more efficient, we constantly improve its functional range.
The following features and functions are in preparation.

Video	Multi monitor user consoles - even in cascades
Network	Possibility to update all components over network and web interface
Signals	Switching of USB 2.0 transparent
OSD	Transparent presentation of the OSD menu on original computer background; no screen burn-in effect by wandering OSD during not operation
Central Monitoring	DevCon support for central configuration and central monitoring with the DevCon-Center appliance
KVM-IP-Access	KVM over IP access via native client and web interface
Power	Central power supply for several DVI-CPU
Mounting	Rack mounting frame for several DVI-CPU

Central module
DVICenter DP32
Item no.
A230 0035

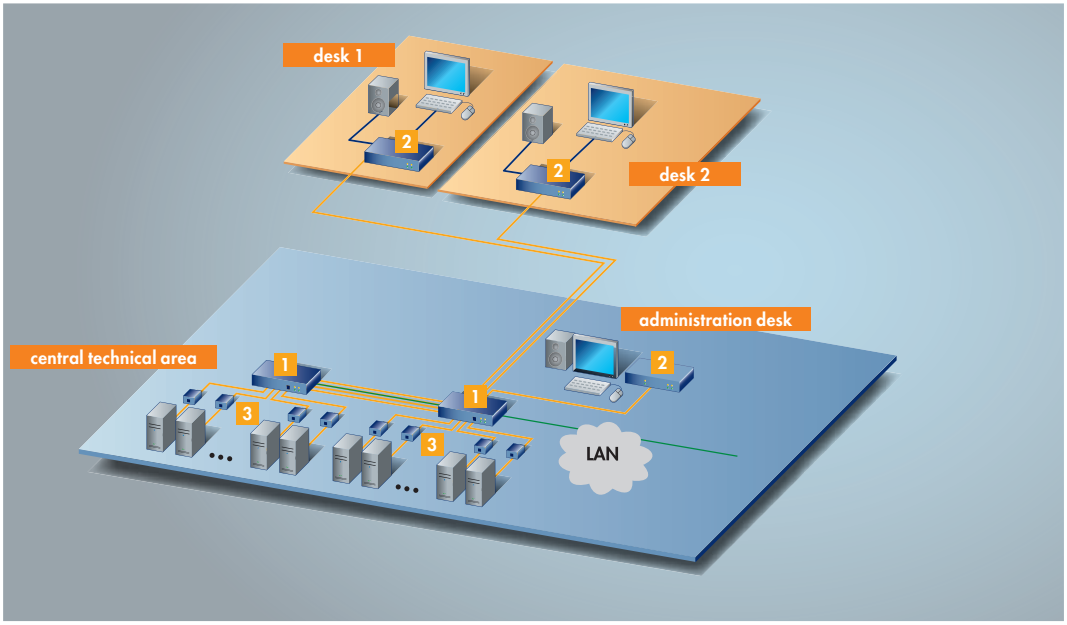
User module
DVI-CON
Item no.
A112 0140

Computer module
DVI-CPU
Item no.
A232 0051

The operation and configuration of the DVICenter DP32 system is carried out via:
Hotkey or On Screen Display or Web interface „Config Panel"

Operation Configuration

1 DVICenter DP32
2 DVI-CON
3 DVI-CPU



Example: The computers are housed in a central control room, separated from the users. In the technical area, an administration console allows the administrator to operate the computers. The desks can be provided with both digital and analog monitors. Two DVICenter DP32 (1 x master, 1 x slave) connect the user modules and the computers. A dedicated CAT-x link integrates the productive workplaces into the operational concept (DVI-CON) where they work on the computers like an 1:1 connection. The DVICenter DP32 can be integrated into the network for configurating the device via web interface, sending messages to a Syslog server or using directory services. Each user module can access every computer. Flexible operation concepts can be implemented, which creates perfect conditions for both users and computers.

System features (extract)

Area	
Video	digital up to 1920 x 1200 @ 60 Hz analog up to 1920 x 1200 @ 60 Hz (1280 x 1024 @ 85 Hz); on input and output side
Transmitting distance	up to 140 metres distance between computer module and central module as well as between central module and user module; cascaded up to 560 m in total at full video resolution
Operating environment	
Temperature	+5 to +40 °C
Air humidity	< 80 %, non-condensing
Connection	No set activation sequence
	Stay-alive function/Moving Target Function: when switching on and off or when "moving" a switching component, the computers remain unaffected since the device information is stored based on ID and not on ports
	Ready for hot plug: computers and system components can be connected during operation (exception: initial installation of SUN servers)
	Auto acknowledge: added components are automatically initialised
Power	Internal, redundant, mutually monitoring power supply at the central module with trap message
LEDs/Finder LEDs	Identification LED (device LED is switched on/off via web application and locates the device within a rack), LEDs for identification of either console and computer ports, control of power supply, operating status
Network access/Monitoring	Operation, configuration and updates of the components, transmission of SNMP traps and request of agent (integrated), monitoring/surveillance of critical device status (optional),
Expansion	System can be expanded flexibly on all module levels
	Expansion is carried out using standard system ports
	Expansions can be carried out while the computers are in operation and do not require a system restart
	Sytem expansions/cabling are automatically detected and dynamically updated

Rear view

Central module DVICenter DP32

Item no.
A230 0035

Individual features of the module

Technical Data			DVICenter DP32
User ports per device			1 - 31
Computer ports			31 - 1
Transmission length computer module ↔ central module ↔ user module			140 m ↔ 140 m
Transmission type			dedicated CAT-x link
Update port			via RJ45 network socket
Independent network connection			2 x
Power supply	Main	Type	internal power pack
		Connection	IEC plug (IEC-320 C14)
		Voltage	AC100-240V/60-50Hz 0.8 - 0.3A
	Redundant	Type	internal power pack
		Connection	IEC plug (IEC-320 C14)
		Voltage	AC100-240V/60-50Hz 0.8 - 0.3A
Casing	Material		anodised aluminium
	Dimensions	(W x H x D) Desktop	435 x 44 x 211 mm
		Rackmount	19" x 1HU x 211 mm
Weight			approx. 3.0 kg
Interfaces	to user module		RJ45 socket
	to computer module		RJ45 socket
	for network		2 x RJ45 socket
	for update		via network port
	for power switch		RJ11 socket
Conformity			CE, RoHS

x = 5e, 6, 7

The computers can be operated at any time, even in case of problems within the network or failure of one port on the central module. For an emergency operation both user and computer module can be connected directly via a crossover CAT-x cable.

Failover Connection

User module DVI-CON
Item no.
A112 0140

Rear view DVI-CON

Individual features of the modules

Technical data			DVI-CON
Signal type/video			DVI-I single-link
Video resolution		local connection	1920 x 1200 @ 60 Hz (1280 x 1024 @ 85 Hz)
Colour depth			24 bit
Audio		Resolution	24 bit digital
		Sampling rate	96 kHz
		Bandwidth	22 kHz
Transmission length central module to user module			140 m
Transmission type to central module			dedicated CAT-x- link
Users			1
Update port			local service socket
Assigned user connections at central module			1
Power supply	Main	Type	internal power pack
		Connection	IEC plug (IEC-320 C14)
		Voltage	AC100-240V/60-50Hz 0.4 - 0.2mA
	Redundant (optional)	Type	external power pack
		Connection	Mini-DIN 4 power socket
		Voltage	+12V DC/1.2A
Casing	Material		anodised aluminium
	Dimensions	Desktop	210 x 44 x 210 mm
	(W x H x D)	Rackmount	19" x 1HU x 210 mm
Weight			approx. 1.3 kg
Interfaces	for user	video	DVI-I socket
		PS/2 keyboard/mouse	2 x Mini-DIN 6 socket
		USB keyboard/mouse	2 x USB-A socket
		TradeSwitch-LED	D-Sub 9 socket
		audio	2 x 3.5 mm socket
	to central module		RJ45 socket
	for updates		Mini-USB-B socket
Conformity			CE, RoHS

x = 5e, 6, 7

Variants

TWIN-DVI-CON - 2 in 1
DVI-CON is also available as a twin variant. This design combines two DVI-CON modules behind one front panel and enables you to save space by placing two user modules on just one HU.

Computer module DVI-CPU
Item no.
A232 0051

Rear view DVI-CPU

Rear view DVI-CPU

Individual features of the modules

Technical data			DVI-CPU
Signal type/video			DVI-D single link
Video resolution			1920 x 1200 @ 60 Hz
Colour depth			24 bit
Audio		Resolution	24 bit digital
		Sampling rate	96 kHz
		Bandwidth	22 kHz
Interfaces to central module			1
Transmission length computer module to central module			140 m
Transmission type to central module			dedicated CAT-x link
Power supply	Main	Type	external power pack
		Connection	Mini-DIN 4 socket with PowerLoop
		Voltage	+12V DC/500mA
Casing	Material		anodised aluminium
	Dimensions	(W x H x D)	105 x 26 x 104 mm
	Build		converter
Weight			approx. 0.24 kg
Interfaces	to computer	video	DVI-D socket
		PS/2 keyb./mouse	2 x Mini-DIN 6 socket
		USB keyb /mouse	USB-B socket
		audio	2 x 3,5 mm jack plug
	for updates		Mini-USB-B socket
	to central module		RJ45 socket
Conformity			CE, RoHS

x = 5e, 6, 7

Overview DVI-CPU power supply

DVI-CPU in total	directly supplied	per PowerLoop	power pack required
3	1	2	Power-Set 12-Typ 3
5	1	4	Power-Set 12-Typ 2

Variants

DVI-CPU-Wintu3

At the computer side, these variants support the communication with Wacom Intuos 3 tablets. Standard DVI-CON devices ensure the support at the console side.

DVI-CPU-without-power-pack

The DVI-CPUs support „Power-Loop", the looping through of the power supply.
By using a central power supply, the DVI-CPU devices do not require additional power packs. Therefore, the DVI-CPU-without-power-pack variant is shipped without a power supply.

DVI-CPU-UC - Increasing the number of consoles

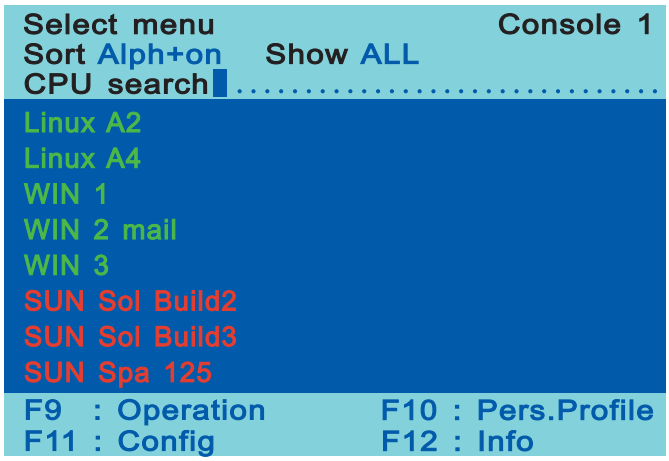
By deploying the DVI-CPU-UC computer module, a computer can be accessed from two DVICenter clusters. Thus, the number of accesses is duplicated. For more information see chapter „Expansions".

Installation

Thanks to the 19" rackmount solutions, the DVI-CPU can be easily installed into a server rack.

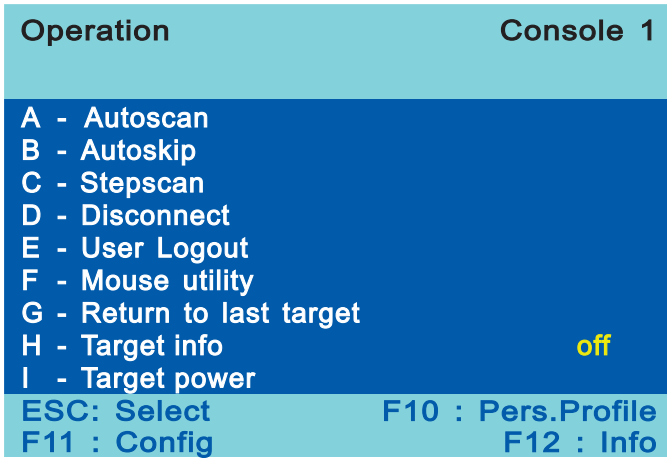
Operation and configuration via OSD

The DVICenter DP32 system is operated and configured via keyboard hotkeys or the on screen display. These two components are available at the DVI-CON user module and ensure fast and easy operation across the entire system. The OSD is displayed on the existing desktop background. At any time the user recognizes on which computer he's switched on.
The OSD of the DVICenter resembles that of the CATCenter NEO. Changing the system therefore no longer requires any readjustments.

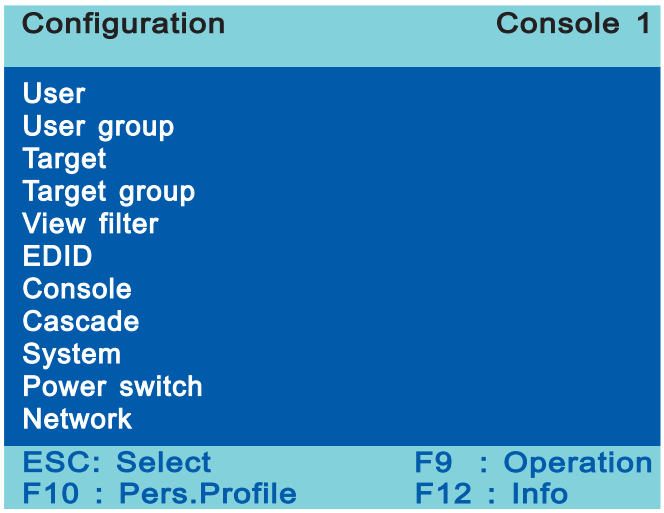


Computers can directly be selected via the OSD "**Select menu**".

The information displayed by the "**Select menu**" can be adapted to the individual needs of each user. The administrator may for example allocate "user rights" that define which computers can be accessed by which user.



Frequently used operation tasks are provided in the "**Operation**" menu (e.g. deploying of scan processes).



The centralized configuration of the system is carried out via the "**Configuration**" menu. System configuration for computers and user rights but also system-wide settings can be carried out here, such as assign IP addresses, user rights management etc.

Functional features OSD

Area	
Users	Create up to 256 individual user accounts
	Integrated multi-level user and rights management to improve safety requirements of users; can be freely activated/configured
	Set up password protection for all users
	Form groups for effective rights management
	Assign individual configuration rights
	Assign access rights for the individual computers
	Activate the multiuser mode for the simultaneous switching of serveral users onto one computer
Computers	Create, edit or delete computer descriptions
	Select or search computers directly by entering the name in the Select menu
	Free Seating: switch to a preferred computer after each log in at any console
	Set the permanent display of the computer description on the screen
	Form groups for effective access management
	Select 3 scan modes for automatic or manual through-connection of connected computers
	Display computer routing, including across cascades
Power	Switch computer power supply (additional component required)
System info	Re-detection of components with automatic assignment of the known configuration information
	Schematic illustration of the system layout from the computer to the user
	Display of all computers as a list – even across cascades; no switching across multiple OSDs
	Display of the assigned status conditions for user <-> computer
User	Integrate PS/2 keyboards with special functions
	Set up open, direct access without password prompt
	Define a preferred computer which is switched-to immediately after logging on
	Activate access protection via auto log-off when leaving the user module
	Block OSD to prevent system access to specific consoles
	Set up a video console (e.g. beamer) with remote control via other users (Push-Get and TradeSwitch module required)
Updating	Firmware updates over the network, alternatively via service socket

Thanks to its capability and an integrated web interface the DVICenter provides the following possibilities:

Configuration: adjust device settings e.g. port configuration

Monitoring: display and report of device status (optional, see chapter „Expansions“)

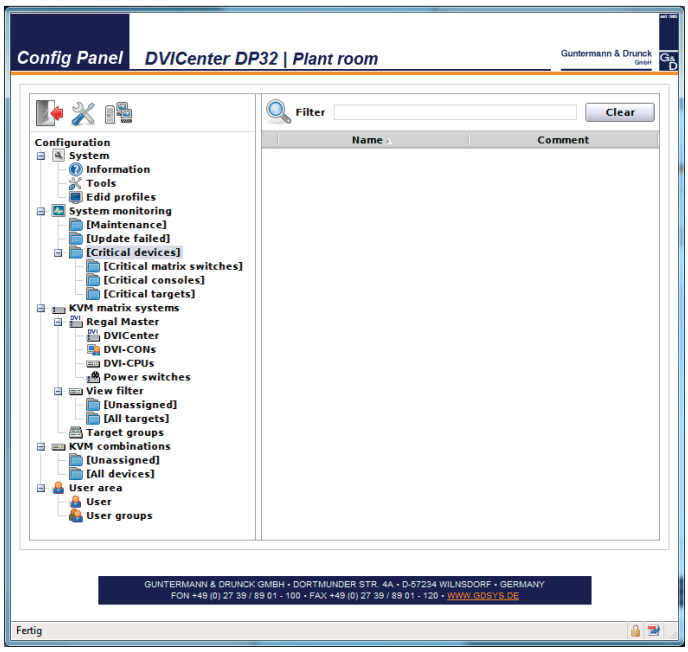
The following option is in preparation:

DevCon support support the communication by applying the DevCon-Center for central configuration and monitoring

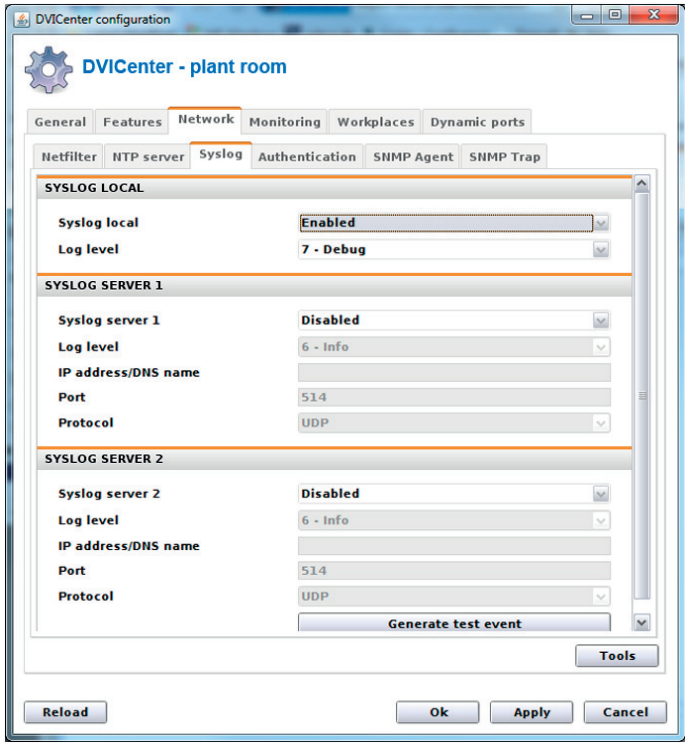
Configuration via web interface (integrated)

Instead of using the OSD, all configuration settings can be carried out easily and clearly in the graphical web interface. Device specific settings as well as the integration into the network are just examples.

The highest level of usability is of paramount importance to allow the users intuitive and easy operation. The web interface is provided both in German and English. The access is password-protected. All configurations are stored and in part, directly printable.



▲ Within the configuration menu all relevant settings of the product can be executed.

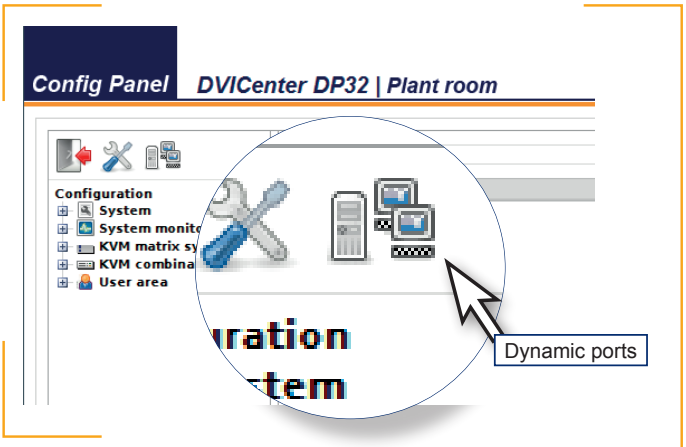


Network configuration area: Syslog settings ▶

Functional features Config Panel

Area	
Configuration	Set network parameters conveniently using a graphical interface
	Assign network filter rules which permit or reject access to the system for specific IP addresses
	Enter date and time, select NTP server
	Adjust auto-logoff of a user module
Maintenance	Backup the configuration data
	Restore the configuration data
	Restore the original factory status
Updates	Import firmware updates via network
Directory service	Perform authentication against LDAP, Active Directory, TACACS+ and Radius

Dynamic Port technology (integrated)

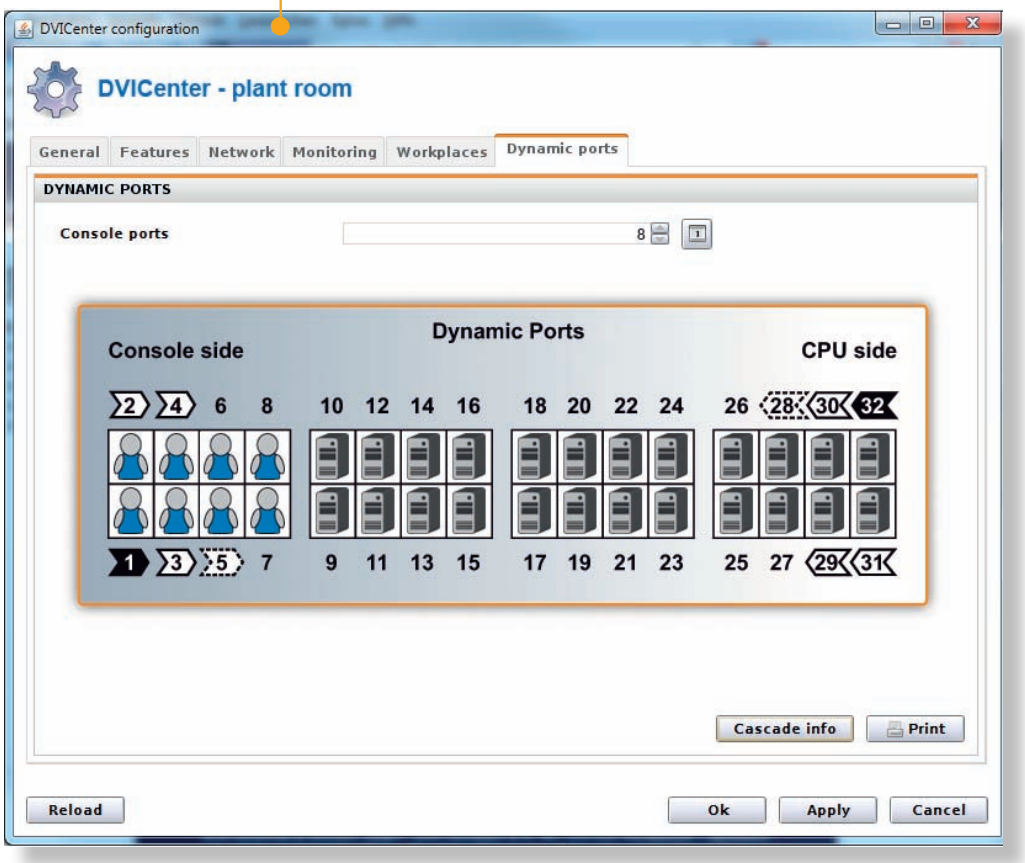


▲ Dynamic Port button in Config Panel of DVICenter

For a quick and comprehensive overview, the web interface provides a special icon for applying the Dynamic port technology.

A total of 32 Dynamic Ports enable the user to connect either user modules or computer modules. Per default, the first 8 ports are for connecting user modules. Ports 9 to 32 are pre-configured for the connection of computer modules.

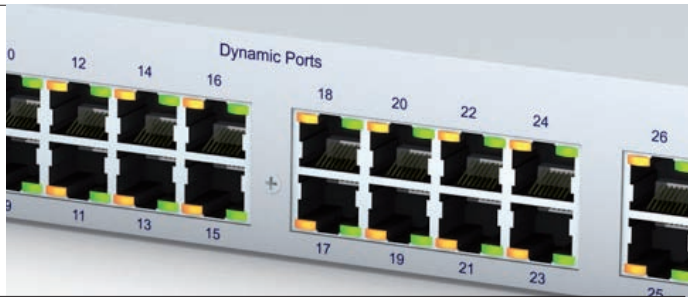
The Dynamic Ports can be reconfigured at any time.



Configuration area of Dynamic Ports at Config Panel ▶

In addtion to the representation in the Config Panel, the port LEDs at the central module show different colour assignment:

yellow LED flashes: user module is connected
green LED flashes: computer module is connected



Enlarged view of computer/user ports at central module DVICenter DP32 ▶

Central module expansion: Cascading

The DVICenter DP32 system can be cascaded in three levels to increase the number of connectable computers. The master carries out all control tasks. The examples as shown assure full access for all consoles to all computers in all cascade levels.

Cascading adds an additional transmission distance of 140 m per DVICenter DP32. Therefore, the distance from the computer to the cascaded central modules through to the user module can be up to 560 m at the highest cascade level.

Possible number of computers in full-matrix cascading

Stand alone		slave 1 / cascade level 1		slave 2 / cascade level 2	
no. of user ports	computer ports	no. of computers	no. of DVICenter	no. of computers	no. of DVICenter
1	31	961	32	-	-
2	30	450	16	6 750	241
3	29	263	10	2 369	91
4	28	196	8	1 372	57
5	27	137	6	687	31
6	26	106	5	426	21
7	25	79	4	241	13
8	24	72	4	216	13
9	23	51	3	107	7
10	22	46	3	94	7
11	21	31	2	41	3
12	20	28	2	36	3
13	19	25	2	31	3
14	18	22	2	26	3
15	17	19	2	21	3
16	16	-	-	-	-

Expansion of number of users

By applying the computer module DVI-CPU-UC or DVI-CPU-UC-Wintu3, two DVICenter clusters can access one computer.

The number of accesses can be doubled thereby.

The UC modules are directly connected to a power source.

Computer module DVI-CPU-UC

Item no.

A232 0052

rear view DVI-CPU-UC

Technical data			DVI-CPU-UC
Signal type/video			DVI-D single-link
Video resolution			1920 x 1200 @ 60 Hz
Colour depth			24 bit
Audio		Resolution	24 bit digital
		Sampling rate	96 kHz
		Bandwidth	22 kHz
Interfaces to central module			2
Transmission length computer module to central module			140 m
Transmission type to central module			dedicated CAT-x link
Power supply	Main	Type	external power pack
		Connection	Mini-DIN 4 socket
		Voltage	+12V DC/700mA
Casing	Material		anodised aluminium
	Dimensions	(W x H x D)	105 x 26 x 124 mm
	Build		converter
Weight			approx. 0.24 kg
Interfaces	to computer	video	DVI-D socket
		PS/2 keyb./mouse	2 x Mini-DIN 6 socket
		USB keyb /mouse	USB-B socket
		audio	2 x 3,5 mm jack plug
	for updates		Mini-USB-B socket
	to central module		2 x RJ45 socket
Conformity			CE, RoHS

x = 5e, 6, 7

Monitoring the device status via web interface

WEB If | Moni tor | LAN

The „**Monitoring**" feature enables the detection of device status information. The information is displayed in the web interface of the devices.

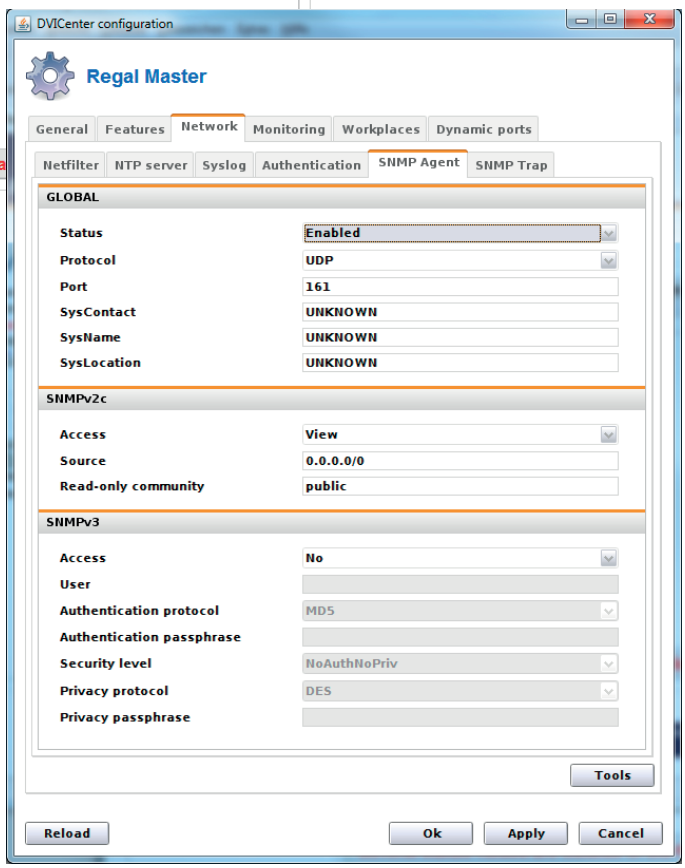
The Monitoring function can be activated by loading an activation key via the web interface. SNMP trap and agent are usable as standard.

◀ Web interface showing monitoring values

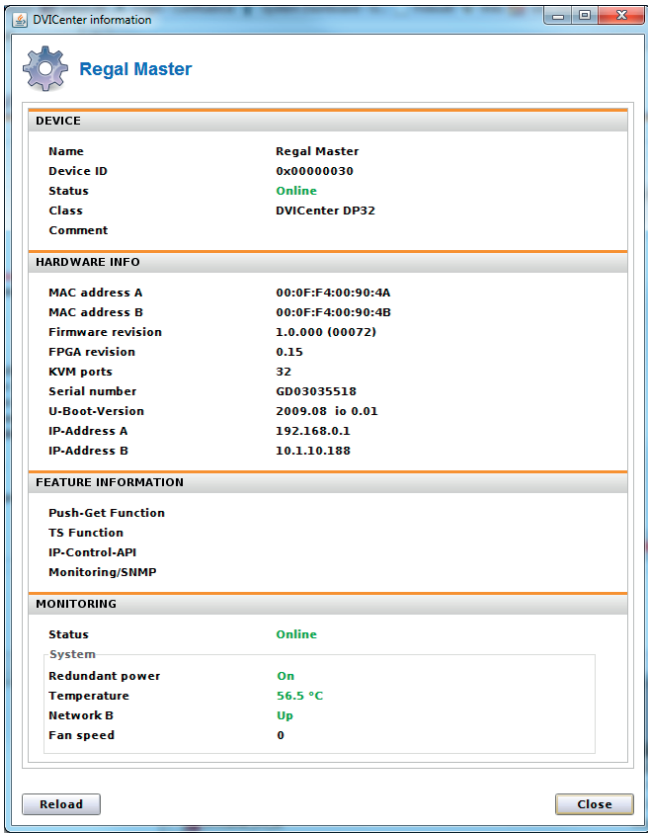
Next to displaying the detected values in the web interface, they can either be sent (SNMP Trap) or requested (SNMP GET).

The web interface offers the settings for external querying of the SNMP agent. Versions SNMPv2c and V3 are supported. Additionally, the forwarding of SNMP traps is integrated.

▼ SNMP agent settings



▼ Information menu



The **information menu** displays the values set in the configuration menu and the detected status values of the device.

Among others, the following status values are provided:

- main power supply - device
- redundant power supply - device
- temperature - device
- etc.

Values changing their statuses (e.g. power on/off) and values exceeding predefined limits (e.g. temperatures) are highlighted in red in the web interface. Furthermore, the device informs the administrator according to preset parameters.

Expansion of the system range: Fiber to the DVICenter

Increase the system range up to 10,000 m

The DVI-FiberLink(S) increases the system range within a DVICenter cluster by 10,000 m. The system consists of two identical modules for the computer side (transmitter) and the console side (receiver). The signals are transmitted using singlemode fiber optics (2 fibers). Each DVI-FiberLink(S) system extends one access.

The DVIFiberLink(S) can be placed:
- between computer and DVICenter
- between 2 DVICenters
- between DVICenter and DVI-CON user module

DVI-FiberLink(S)
Item no.
A230 0044

front and rear view

4. Expansion on user side: communication modules

The DVICenter can be extended with optional add-on functions:

Function	**TS-Function DVICenter** DVI-CON pooling with "TS function"	**Push-Get-Function DVICenter** DVI-CON interaction with "Push-Get function"	**IP-Control-API DVICenter** DVICenter remote control with „IP-Control-API"
Description	The TradeSwitch function groups multiple user modules (DVI-CON) into one logical user. This logical user can be operated with merely one keyboard and one mouse but has multiple displays (multi-monitor user). A hotkey assigns keyboard/mouse to the individual DVI-CON of the logical user.	The Push-Get function permits the image of a target to be moved to the display of another user - or to be taken from there. The user's display can be a large screen projection, for example.	The IP-Control-API function can be used to send switching commands via the local network to the DVICenter. Then the system operates independently from a DVI-CON user module. In this case, the DVI-CON can only be used to connect the displays. We provide you with the programming interfaces (Windows DLL or Linux SO) – you create the user interface, e.g. touchscreen.
Operation via	Hotkeys	OSD	Operating interface is programmed by the customer.
Required for use	Activation in the DVICenter master	Activation in the DVICenter master	Activation in the DVICenter master, DVICenter as master, In-house programming of an operating interface

Central module expansion: power switching

The "Power switching" function can be added to the system using the HardBoot CCX module. The HardBoot CCX are connected serially to the DVICenters and switched via the DVICenter OSD. Each target can have three power sources with different phases assigned to it and can be switched by using one command (grouping). By cascading the HardBoot CCX, up to 128 power sources are available per DVICenter.

Technical data			HardBoot CCX
Power outlets per unit			8 (2 x 4)
Max. no. of cascaded devices			16
Max. available power ports per DVICenter			128
No. of parallel switchable power ports (across all devices)			3
Cascading			RS485 bus
Cascade interface			RJ12 socket
Switching current			2 x 10A
Permanent current per consumer			10A
Peak current per device			120A
Power supply	Main	Type	2 x internal power pack
		Connection	2 x IEC plugs (IEC-320 C14)
		Voltage	AC230V/50Hz
Current delivery		Connection	2 x 4 x IEC sockets (IEC-320 C14)
		Voltage	AC230V/50Hz 2 x 10A
Casing	Material		metal
	Dimensions	(W x H x D)	
		Desktop	435 x 44 x 107 mm
		Rackmount	19" x 1HU x 107 mm
Weight			approx. 2.0 kg
Temperature			+0 to +50 °C
Operating environment		Air humidity	10 % – 80 %, non-condensing
Interfaces		to central module	D-Sub 9 socket
Conformity			CE, RoHS

Minimum system

A working system requires at least the following components:

Art. no.	Description	
A230 0035	DVICenter DP32	Central module
A232 0051	DVI-CPU	Computer module
A112 0140	DVI-CON	User module
see KVM	PRO-x	CPU connection cable
Connectivity	K-C5-HR-x	Ready-made cables, transmission up to 100 m

Components

A230 0035	DVICenter DP32	central module, desktop incl. rackmount kit
A232 0051	DVI-CPU	computer module for PS/2 or USB keyboard/mouse, digital video, audio, incl. power supply
A232 0053	DVI-CPU without-power-pack	computer module for PS/2 or USB keyboard/mouse, digital video, audio, without power supply
A232 0057	DVI-CPU-Wintu3	computer module for PS/2 or USB keyboard/mouse, digital video, audio, with support of Wacom Intuos Tablets series 3, incl. power supply
A232 0059	DVI-CPU-Wintu3-no PowPack	computer module for PS/2 or USB keyboard/mouse, digital video, audio, with support of Wacom Intuos Tablets series 3, without power supply
A112 0140	DVI-CON	user module, desktop
A112 0141	DVI-CON-RM	user module, rackmount
A112 0142	Twin-DVI-CON	double user module, desktop incl. rackmount kit

Expansions

A232 0052	DVI-CPU-UC	computer module for PS/2 or USB keyboard/mouse, digital video, audio twofold access to one computer, incl. power supply
A232 0058	DVI-CPU-UC-Wintu3	computer module for PS/2 or USB keyboard/mouse, digital video, audio, with support of Wacom Intuos Tablets series 3, twofold access to one computer, incl. power supply
A820 0016	DC-Monitoring	Supervision and display of device status
A230 0044	DVI-FiberLink(S)	Transceiver for extending the system range up to 10,000 m, please order 2 x for 1 line
A820 0014	TS-Function DVICenter	TradeSwitch module for 1 DVICenter cluster
A820 0013	Push-Get-Function DVICenter	Push-Get module for 1 DVICenter cluster
A820 0015	IP-Control-API DVICenter	IP-Switching module for 1 DVICenter system
A410 0001	HardBoot CCX	Power switch for 8 power sources, cascadable up to 128 power sources, rackmount

Accessories

A411 0008	Power-Set 12-Typ 2	external power pack; redundant power supply; 12V/5A
A411 0013	Power-Set 12-Typ 3	external power pack; redundant power supply; 12V/2A

Connectivity

Art. no.	Description	Category in KVM Connectivity	Function
see KVM Connectivity	PRO-x	CPU connection cable	computer connection
	USB-Service-x	USB cable	update
	PowerLoop-MD4P-x	Power supply cable	power supply connection for DVI-CPU
	K-C5-HR-x	ready-made cable	transmission up to 100 m
	K-C7-LD-x	ready-made cable	transmission up to 140 m
	K-LwLs-SCD	ready-made cable	transmission between DVI-FiberLink(S) devices

Please quote the article number and description when ordering.

Legend

ABBREVIATIONS

CPU = Computer module
PC = Computer module

CON = User module
REM = User module

MC2 = Multichannel 2
MC3 = Multichannel 3
MC4 = Multichannel 4

M = Multimode
S = Singlemode
RM = For assembly in a 19“ rack

A = Audio
AR = Audio + RS232
R = RS232
U = transparent USB 1.1
U2 = transparent USB 2.0
D = Delay

EQUIPMENT FEATURES

= keyboard/mouse

= DVI dual-link video

= DVI single-link video

= DVI single-link + analog video

= analog video

= Audio

= RS232

= USB 1.1

= USB 2.0

= Delay

= Screen Freeze

= Power Switching

= Fire Wire

= VT100

= KVM IP access

= Network connection

= Web interface

= DevCon support

= Monitoring

= CAT cable

= Fiber optics

= Single user

= Multi user

= Competing local/remote user

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Descriptions are usually based on the the max. stage of expansion.

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